

Date: Friday, 04/04/2008 9:52:08 AM  
 User: Julie Lecocq

## Process Sheet

<b>Customer</b> :	CU-DAR001 Dart Helicopters Services	<b>Drawing Name</b> :	SKID TUBE ASSEMBLY
<b>Job Number</b> :	38384		
<b>Estimate Number</b> :	10023		
<b>P.O. Number</b> :		<b>Part Number</b> :	D205634041
<b>This Issue</b> :	04/04/2008	<b>S.O. No.</b> :	
<b>Prsht Rev.</b> :	NC	<b>Drawing Number</b> :	D2580 REV D
<b>First Issue</b> :	04/04/2008	<b>Project Number</b> :	N/A
<b>Previous Run</b> :	38383	<b>Drawing Revision</b> :	D
		<b>Material</b> :	
<b>Written By</b> :		<b>Due Date</b> :	05/05/2008
<b>Checked &amp; Approved By</b> :	<u>JD 08.04.4</u>	<b>Qty:</b>	1 Um: Each
<b>Comment</b> :	Est Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ Est Rev: O 06.02.28 Added paperwork EC Est Rev:P 07-07-09 SS Wearplates & Gaskets JLM		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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Comment: DOCUMENT CONTROL

Photocopy D205-634 bluefile &amp; type labels per PPP D205-634 CHG002

08/4/14 JLD

2.0	D25001190	Ext'n -1" Beam Tube 4"
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2500-1-190	Skid Tube Extrusion	B-29602- AWM-8-4-7

3.0	D2596	205 Web
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2596	205 Web	B-37753 AWM 8-4-7

4.0	SKIDTUBES 1	SKIDTUBESS RESOURCE 1
-----	-------------	-----------------------



Comment: LANDING GEAR RESOURCE 1

1- Inspect mat'l D2500-1-190 for damage

2-Cut D2500-1-190 per Dwg D2580 if necessary Deburr ends

3-Acid etch and Alodine tube per QSI 005 4.1

AWM 8-4-7

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Drawing Name: SKID TUBE ASSEMBLY

Job Number: 38384

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

BE 08/04/07

6.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill pilot holes using drill jig DT 8149(Do not use cutting fluid)

2-Open holes to 0.500" as per Dwg D2580without cutting fluid

3-Countersink holes as per Dwg D2580without cutting fluid

4-Deburr and blow out all chips from inside of tube

5-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty	Part Number	Description	Batch
A/R	Sikaflex-291	107397	
Sikaflex expire date:		7-31-7	
Start Time:		8-4-7	
Fin Time:		8-4-9	

AWM  
8-4-7

7.0

BENDING

BENDING MACHINE - SKIDTUBES



Comment: BENDING MACHINE

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

EL 8-4-9

8.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Deburr ends

2-Prepare tube for welding, remove alodine as required.

BE 08/04/10

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Job Number: 38384

Part Number: D205634041

Job Number:



Seq. #: Machine Or Operation: Description :

9.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08/09/10

10.0 D25763 Step (Machining Detail)



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2576-3	Step	25321

BE 08/04/10

11.0 D2579 Crossbolt Spacer



Comment: Qty.: 20.0000 Each(s)/Unit Total: 20.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
20	D2579	Spacers	27856

BE 08/04/10

12.0 LARGE FAB 1 LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

2-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R Aluminum Rod

m107263

BE 08/04/10

3-Weld crossbolt spacers D2579 as per Dwg. D2580 and QSI 004.

For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R Aluminum Rod

m107263

BE 08/04/10

4-Grind welds as per Dwg D2580 Grind flush ridge made from bending

AUM-8-4-10/D8-4-11

5-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64", adjust stopper not to hit web. Debur

6-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Debur holes

7-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

8-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

8-4-11

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Part Number: D205634041

Job Number:



Seq. #: Machine Or Operation: Description :

13.0 QC10 VISUAL INSPECTION OF GROUND WELDS



Comment: VISUAL INSPECTION OF GROUND WELDS

*D 08/04/14* *08/04/14* *(X)*

14.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*08/04/14* *(X)*

15.0 HAND FINISHING1 HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1  
Pressure wash as per QSI 005

*08-04-14* *(X)*

16.0 POWDER COATING POWDER COATING



Comment: POWDER COATING  
Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

*FL 08/04/14* *(X)*

17.0 QC3 INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

*M-A 08/04/14* *(X)*

18.0 D2855 Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
Cap  
Batch: *B 35663*

*M-A*

19.0 AN35A Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)  
Bolt  
Batch: *M 100188*

*M-A*

20.0 AN960JD10L Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)  
Washer  
Batch: *M 104885*

*M-A 08/04/14* *(X)*

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Job Number: 38384

Part Number: D205634041

Job Number:



Seq. #:	Machine Or Operation:	Description :
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21.0	ALS71032130	Insert
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Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

Insert

Batch:

M105885

M.A.

22.0	AN3C4A	BOLT
------	--------	------



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

BOLT

Batch:

M107376

M.A.

23.0	AN960C10L	washer
------	-----------	--------



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

washer

Batch:

M107376

M.A.

24.0	D356613	GASKET
------	---------	--------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

Batch:

B32744

M.A.

25.0	D35665	GASKET
------	--------	--------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

Batch:

B37411

M.A.

26.0	D35661	GASKET
------	--------	--------



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

GASKET

Batch:

B38048

M.A.

27.0	D356413	WEARSHOE
------	---------	----------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch:

B37561

M.A. 08/04/14

(IX)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Job Number: 38384

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

28.0

D356411

WEARSHOE



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch:

B37811

M-L

29.0

D35649

WEARSHOE



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch:

B37812

M-L

30.0

D35645

WEARSHOE



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch:

B38297

M-L

31.0

D25943

O-Ring



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

O-Ring

Batch:

B29908

M-L

32.0

D25941

Plug



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Plug

Batch:

B37419

M-L

33.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R

Sikaflex-291

M107397

Sikaflex expire date:

08/10

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

M-L  
08/04/15

(12)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Job Number: 38384

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291

Sikaflex expire date:

M107397

08/10

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch:

M107386

M-L 08/04/15

12

34.0

QC5

INSPECT WORK TO CURRENT STEP



08/04/15 (+)



Comment: Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

35.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D205-634-041

Location:

PPP Rev:

73  
H

8/4/16

SP

12

36.0

QC21

FINAL INSPECTION/W/O RELEASE



08/04/16

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



MF 08-04-16

B38384

NO. 145

# AWS D17.1.2001 QUALIFICATION TEST RECORD

Name Barclay E  
Joint Welding Procedure G+AW  
Part number and Job number D250 634 011 / B37730A

## TEST WELDS REQUIRED

BASE METAL Aluminium  
Penetration Complete ☐ Partial ☒  
Current AC ☒ DC ☐

WELDING PROCESS tig  
Single Weld ☒ Double Weld ☐  
Backing YES ☐ NO ☒

	Position		Vertical Down <input type="checkbox"/> Up <input type="checkbox"/>	
Sheet Groove	1G <input type="checkbox"/>	2G <input type="checkbox"/>	3G <input type="checkbox"/>	4G <input type="checkbox"/>
Tube Groove	1G <input type="checkbox"/>	2G <input type="checkbox"/>	5G <input checked="" type="checkbox"/>	6G <input type="checkbox"/>
Sheet Fillet	1F <input type="checkbox"/>	2F <input type="checkbox"/>	3F <input type="checkbox"/>	4F <input type="checkbox"/>
Tube Fillet	1F <input type="checkbox"/>	2F <input type="checkbox"/>	4F <input type="checkbox"/>	5F <input type="checkbox"/>

Crossbolt Spacer Welded into Skidtube

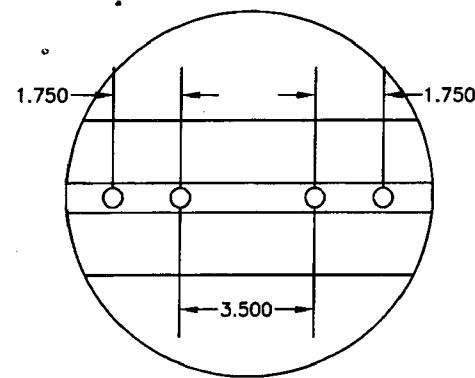
## TEST RESULTS

Visual Pass ☒ Fail ☐  
Penetration Pass ☒ Fail ☐  
Crossbolt Spacer Pass ☒ Fail ☐

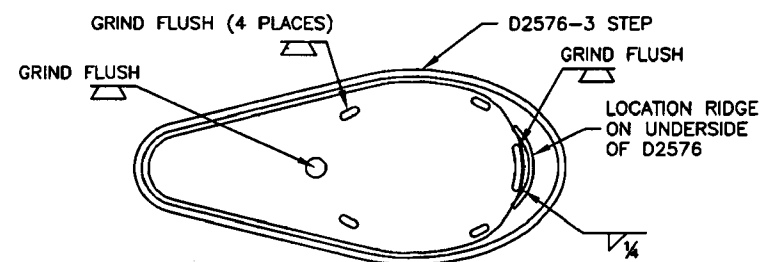
The above named individual is qualified in accordance with AWS D17.1.2001 to weld

Date of Test Coupon 08.03.27 Qualifier Pat. Dux

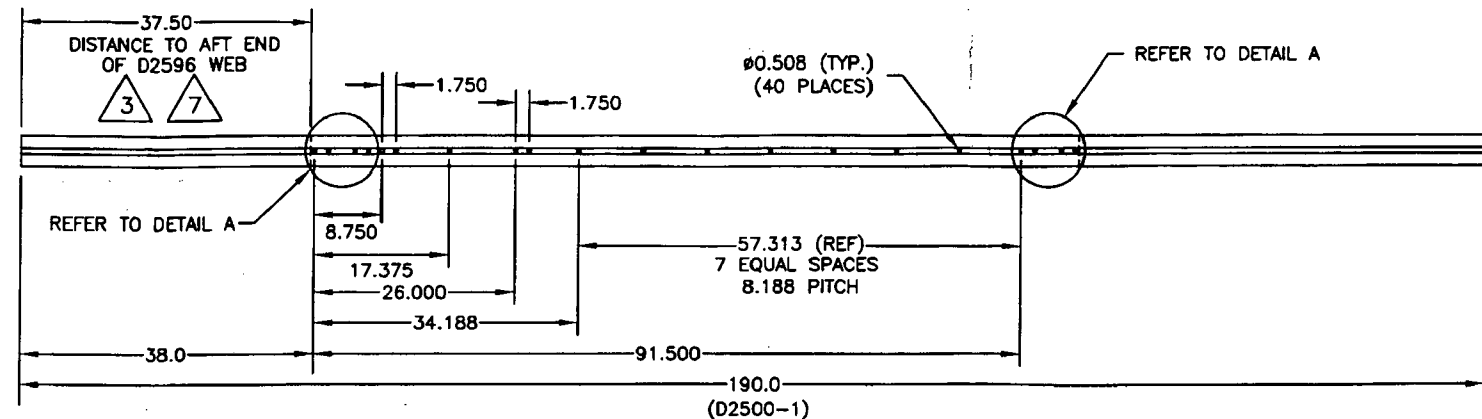
**DETAIL A**  
SCALE 5:24



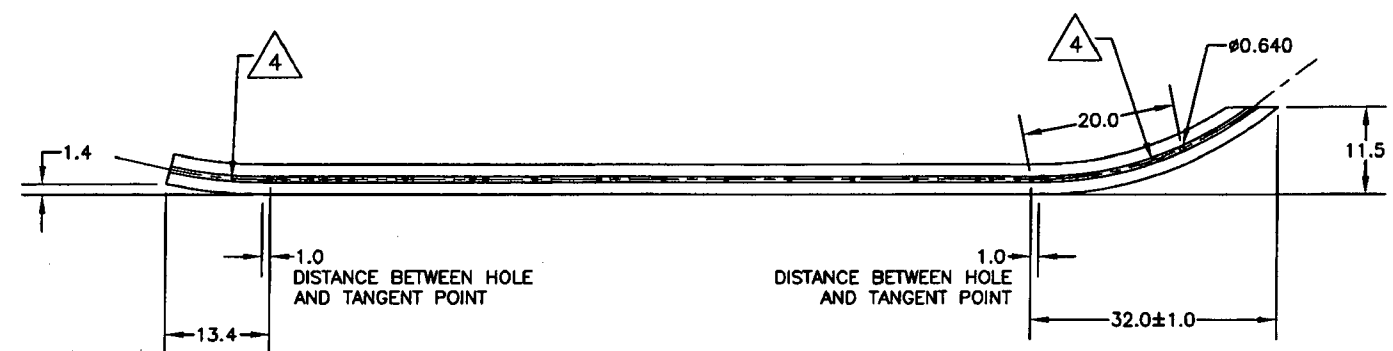
**DETAIL B**  
SCALE 5:24



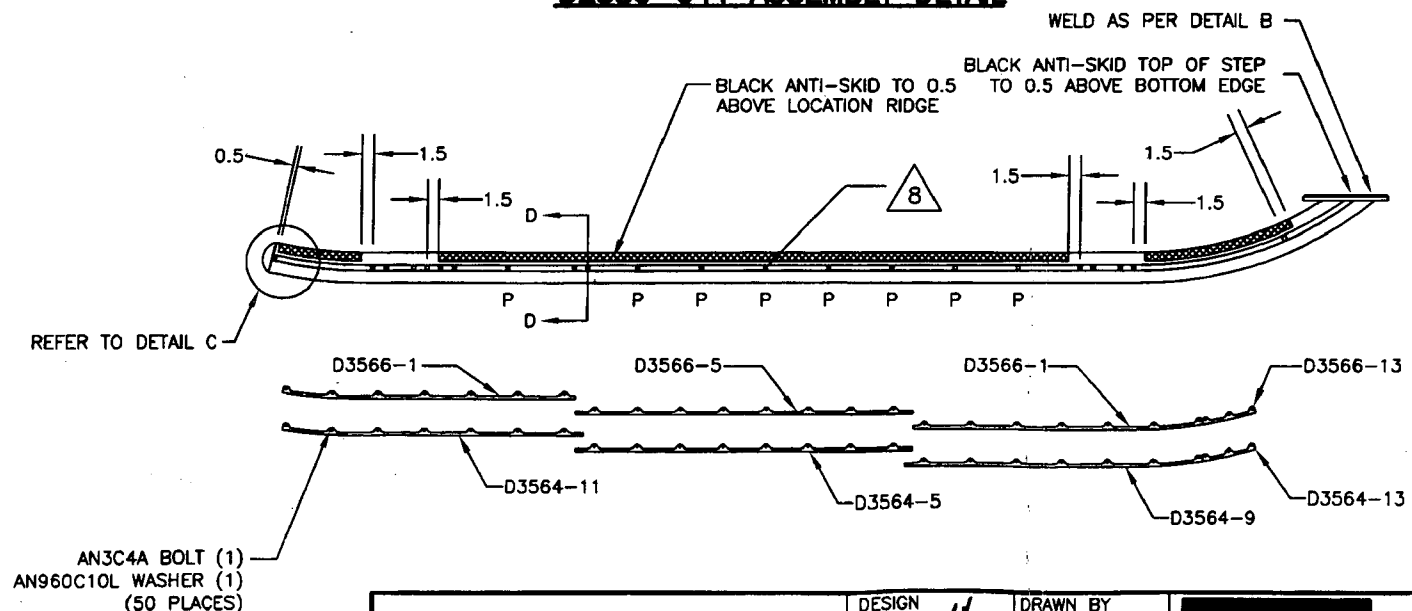
**D2580-1 DRILLING DETAIL**



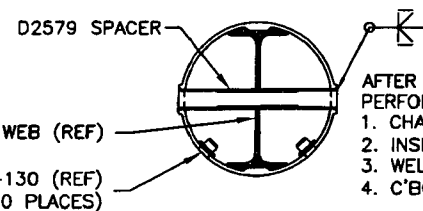
**D2580-1 BENDING AND CUTTING DETAIL**



**D2580-041 ASSEMBLY DETAIL**



**SECTION D-D**  
SCALE 5:24



AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:  
1. CHAMFER HOLE 0.050 X 45°  
2. INSERT D2579 SPACER (20 PLACES)  
3. WELD INTO PLACE AND GRIND FLUSH  
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

SHOP COPY  
RETURN TO  
ENGINEERING  
CONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
38384

**D2580-041 NOTES**

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

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DESIGN

DRAWN BY

CHECKED

APPROVED

DATE

07.02.27

**DART**

DART AEROSPACE LTD.  
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.

D2580

TITLE

205 SKIDTUBE ASSEMBLY

REV. D

SHEET 2 OF 3

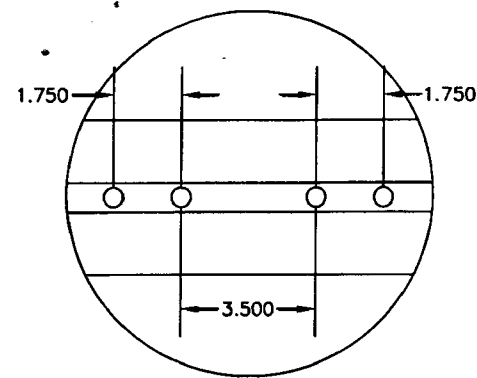
SCALE

1:24



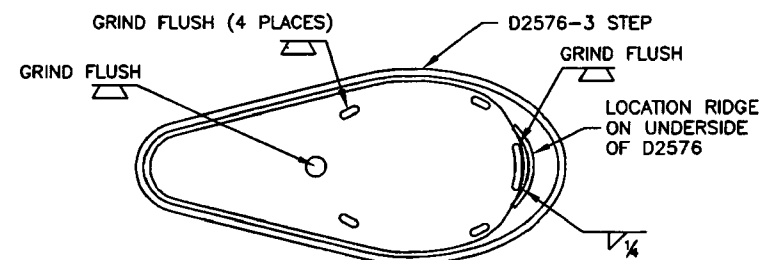


**DETAIL E**  
SCALE 5:24

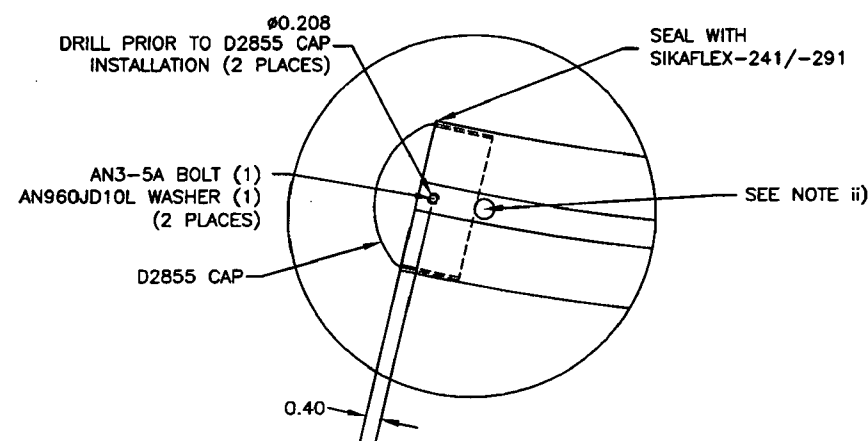


**RELEASED**  
07.02.28

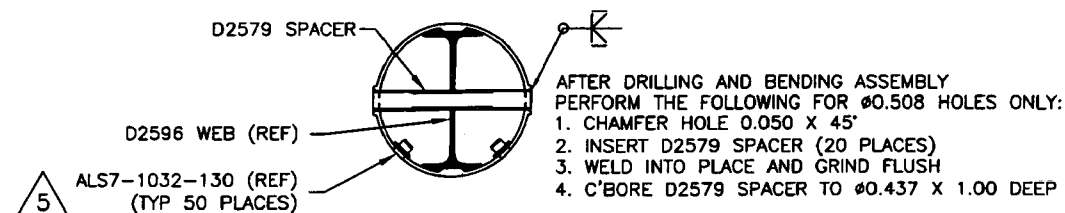
**DETAIL F**  
SCALE 5:24



**DETAIL G**  
SCALE 5:24



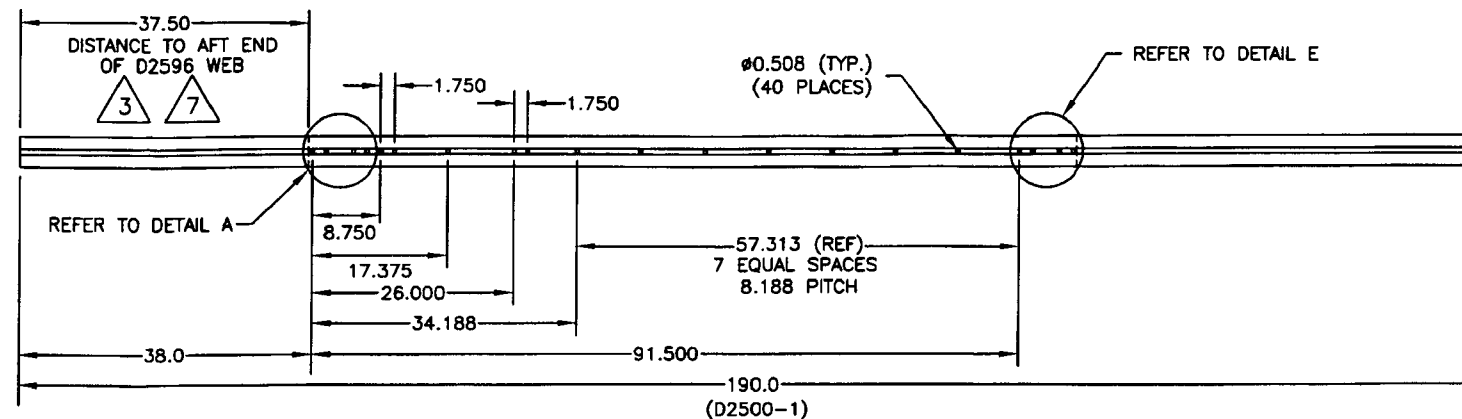
**SECTION H-H**  
SCALE 5:24



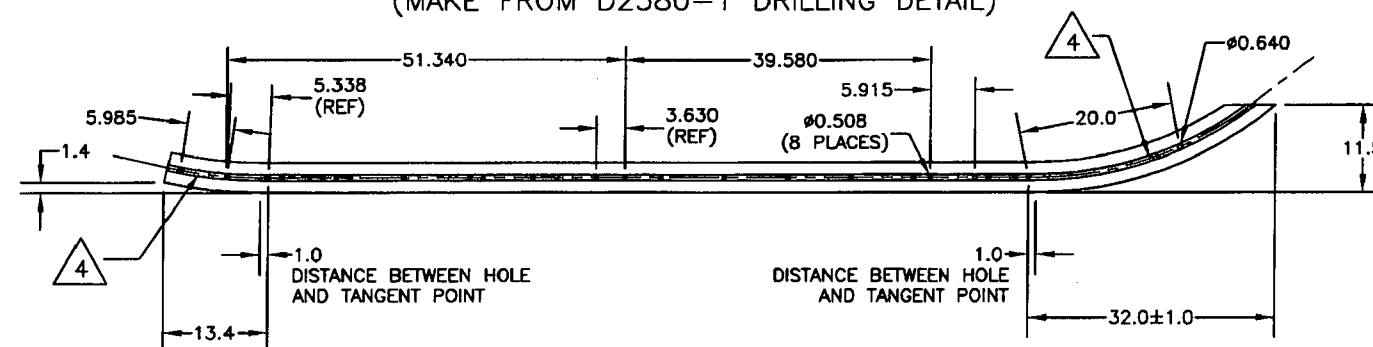
**D2580-045 NOTES**

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE  
WITH THE SPACER AT THIS LOCATION

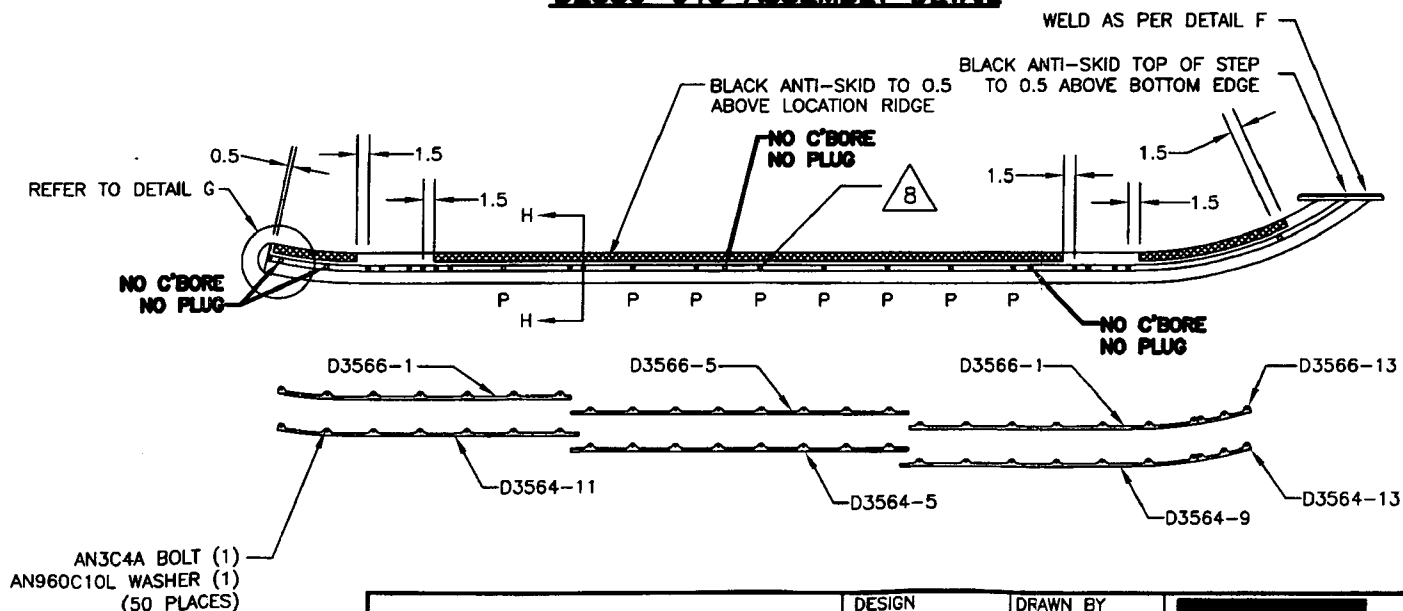
**D2580-1 DRILLING DETAIL**



**D2580-5 BENDING AND CUTTING DETAIL**  
(MAKE FROM D2580-1 DRILLING DETAIL)



**D2580-045 ASSEMBLY DETAIL**



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DESIGN RH	DRAWN BY RH	<b>DART</b>	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
CHECKED H	APPROVED H	DRAWING NO. D2580	REV. D SHEET 3 OF 3
DATE 07.02.27	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24	

